UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,056	04/03/2002	Arno Lange	220950USOPCT	6861

22850 7590 03/17/2006

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER
TOOMER, CEPHIA D

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,056	LANGE ET AL.	
	Examiner	Art Unit	
	Cephia D. Toomer	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-14 and 16-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-14 and 16-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the amendment filed August 29, 2005;

November 21, 2005 and January 4, 2006.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-10,12-14 and 16-78 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 7-10, 12-14, and 16-78 of copending Application No. 10/089,064. Although the conflicting claims are not identical, they are not patentably distinct from each other because the amine of the present invention may be an amine which has at least one primary amino function and at least one secondary amino function which encompasses the amine of 10/089,064.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 36, 51, 66, 72 and 78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36 and 51are rejected because claims 1 and 28 do not provide proper antecedent support for the R substituents being other than hydrogen.

Claims 66, 72 and 78 are rejected because claims 16, 17 and 18 fail to teach secondary amines of the formula HNR^4R^5 wherein the R substituents are aryl, i.e., diphenylamine.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 8-10, 12, 13, 16, 17,19-24, 26, 27, 32-35, 38-41, 44-47, 61-65 and 67-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Colucci (US 5,634,951).

Colucci teaches a detergent/dispersant for use in spark ignition fuels wherein the dispersant is the reaction product of a phenolic compound (phenol, cresol) alkylated

with a highly reactive polyisobutene (PIB) with an aldehyde and an amine (see abstract; col. 2, line 64-67; col. 3, lines 1-10). The PIB has a number average molecular weight of from 500 to about 3000 and a polydispersity in the range of 1-4 (see col. 3, lines 11-21).

The amine is preferably an aliphatic diamine having one primary or secondary amino group such as a N,N-dimethyl-1,3-propanediamine (aka 3-(dimethylamino)-n-propylamine)(see col. 3, lines 61-67; col. 4, lines 25-26). The aldehyde may be formaldehyde (see col. 4, lines 37-47).

Colucci does not specifically set forth the adduct mixture of claims 3 and 10 or that the adduct mixture contains 1-15 mol% of unreacted PIB-phenols (claim 19). However, the mixture of Colucci would inherently meet these limitations because Colucci teaches the same reactants as Applicant.

Accordingly, Colucci teaching all the limitations of the claims anticipates the claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5, 8-10, 12-13, 16-17, 19-27, 32, 33, 38-41, 61, 64, 65, 67 and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton (US 5,876,468).

Moreton teaches a fuel composition comprising a Mannich reaction product of a polyisobutene-substituted phenol wherein at least 70% of the terminal olefinic double bonds in the polyisobutene (PIB) are of the vinylidene type; an aldehyde; and an ethylene diamine (see abstract). The PIBs are the highly reactive type (see col. 1, lines 56-67) and have a number average molecular weight of from 700-2300. The aldehyde is preferably formaldehyde (see col. 2, lines 1-4). The additive is present in the fuel in amount from 20 to 1000 ppm or in a concentrate in an amount from 5-30% by weight (see col. 2, lines 57-61; col. 2, lines 16-21). The fuel is gasoline (see col. 2, lines 30-32). The fuel composition contains conventional fuel additives (see col. 1-13). In comparative Example 3, Moreton teaches the preparation of an adduct of PIB-substituted phenol and dimethylaminopropylamine (one of the amines recited in instant claim 3). In Example !, the reaction is carried out at 22-27 °C. Moreton teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Moreton differs from the claims in that he does not specifically teach the polydispersity of the PIB (claims 1 and 4). However, no unobviousness is seen in this difference because the PIBs of Moreton are of the highly reactive type known to have the claimed polydispersity and the PIBS possess the claimed number average molecular weight. Therefore, it would be reasonable to expect that the PIBs of Moreton meets this limitation. Furthermore, it would have been obvious to one of

ordinary skill in the art to have chosen a highly reactive PIB because Moreton teaches that the PIB has a number average molecular weight of 700-2300 and exemplifies a PIB with a Mw of 1000, which suggests a polydispersity within the claimed range.

In the second aspect, Moreton differs from the claims in that he does not specifically teach the adduct mixture of claims 3 and 10. However, no unobviousness is seen in this difference because Moreton teaches a PIB-substituted phenol that appears to meet the claimed limitations and he teaches the same amine and aldehyde reactants. He reacts them in the same manner as Applicant. Therefore, it would be reasonable to expect that the adducts of claim 3 would be within the scope of Moreton, absent evidence to the contrary.

6. Claims 1-5, 8-10, 12, 14, 16, 18-27, 32, 33, 36, 38-41, 61-65 and 73-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worrel (US 3,413,347) in view of Cherpeck (US 5,300,701) further in view of Baxter (US 6,562,913).

Worrel teaches Mannich reaction products of high molecular weight wherein the products are obtained by reacting a high molecular weight alkylphenol, aldehyde and N,N-dialkyldiamine (see abstract). The alkyl group of the phenol has an average molecular weight of from 550-1400 and is preferably polybutene, which suggest polyisobutene. The aldehyde is preferably formaldehyde and the amine may be N,N-dimethyl-1,3-propanediamine (see col. 1, lines 59-71; col. 3, lines 6-25; col. 4, lines1-17; Examples). The alkylation temperature is from 25-150 °C (see col. 2, lines 50-52). While Worrel does not teach homologs of the phenol (2-methyl phenol), it is well settled that one skilled in the art recognizes that homologs function in the same or similar

manner. The adduct product is added to lubricating oils in an amount from 0.01 to about 10 wt % (see col. 6, lines 52-58). Worrel teaches the limitations of the claims other than differences that are discussed below.

In first aspect, Worrel differs from the claims in that he does not specifically teach that alkyl group is highly reactive PIB having a polydispersity of less than 3.0. However, Cherpeck and Baxter teach this difference.

Cherpeck teaches a process for the preparation of PIB substituted phenolic compound wherein the phenolic compound is alkylated in the presence of an acid catalyst (see abstract). The PIB has a number average molecular weight of 300-5000 and contains at least about 70% methylvinylidene (high reactive) (see col. 2, lines 37-49). Cherpeck teaches that these PIB compounds are the commercial product ULTRAVIS-10 (molecular weight 950) (see Example 1).

Baxter teaches that highly reactive PIB such as ULTRAVIS possess a polydispersity of no more than 2.0 (see col. 4, lines 12-29, 54-58).

It would have been obvious to one of ordinary skill in the art to have replaced the polybutene of Worrel with a highly reactive polybutene because Cherpeck teaches that employing such a polybutene provides the desired PIB-phenol in significantly higher yield than employing conventional PIB having minor amounts of methylvinylidnee and phenols exhibit minimal molecular weight degradation (see col. 4, lines 19-57).

In the second aspect, Worrel differs from the claims in that he does not specifically teach the adduct mixture of claims 3 and 10. However, no unobviousness is seen in this difference because Worrel, Cherpeck and Baxter teach a PIB-substituted

phenol that appears to meet the claimed limitations and they teach the same amine and aldehyde reactants. Worrel reacts them in the same manner as Applicant. Therefore, it would be reasonable to expect that the adducts of claim 3 would be within the scope of Worrel, Cherpeck and Baxter, absent evidence to the contrary.

3. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that Colucci does not specifically disclose a polyisobutylene.

The examiner respectfully disagrees. See col. 2, lines 43-48, wherein Colucci teaches that the hydroxyaromatic compound is formed by alkylating phenol with polybutenes and/or polyisobutylene.

Applicant argues that Colucci does not explicitly disclose a PIB having an average molecular weight of 1000 or less.

Colucci teaches using a PIB as the polyolefin alkylating agent and he teaches that the polyolefins have a polydispersity in the range of about 1 to about 4 and a number average molecular weight of 740-1200, especially PIB having a molecular weight of 800-950. This teaching anticipates the claimed limitations with respect to the molecular weight and polydispersity.

Applicant argues that alkylation is not carried out at below about 50 C.

Colucci teaches an alkylation temperature of about 50 C. This reaction temperature anticipates applicant's reaction temperature.

Applicant argues that based on the low conversion in the examples of Colucci that the highly reactive polyisobutenes of Colucci are not the same as those of the present invention.

Attorney arguments cannot take the place of evidence. Furthermore, Colucci teaches the same Mannich composition as the present invention, as shown by the process parameters and reactant components of Colucci.

Applicant argues that Moreton does not inherently or necessarily have the polydispersity of the PIB of the present invention.

Moreton teaches at col. 2, lines 1-2 that the PIBs have a number average molecular weight of from 700 to 2300 and he exemplifies a PIB that has a molecular weight of 1000. Therefore, given this information, it would be reasonable to expect that the PIB of Moreton would possess the claimed polydispersity.

Applicant argues that a comparative example would not lead one of ordinary skill in the art to the presently claimed invention because the comparative example shows inferior performance.

It is well settled that even a negative teaching may be relied upon to reject claims. A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. In re Gurley, 31 USPQ2d 1130 (Fed. Cir. 1994).

Applicant argues that Worrel's teaching of polybutene does not suggest the isomer PIB because one isomer of a chemical compound does not necessarily disclose a different isomer of the same compound.

The examiner agrees that in all instances one isomer may not suggest another isomer. However, in considering the predictability of the art, one isomer does suggest the other and it should be pointed out that obviousness does not require absolute

predictability, only a reasonable expectation of success, i.e., a reasonable expectation of obtaining similar properties.

Applicant argues that Worrel does not teach highly reactive polyolefin having a polydispersity of less than 3.0 and/or a Mn of 1000. Applicant argues that the combination of references does not demonstrate a reasonable expectation of success or that one skilled in the art would be motivated to make such a combination.

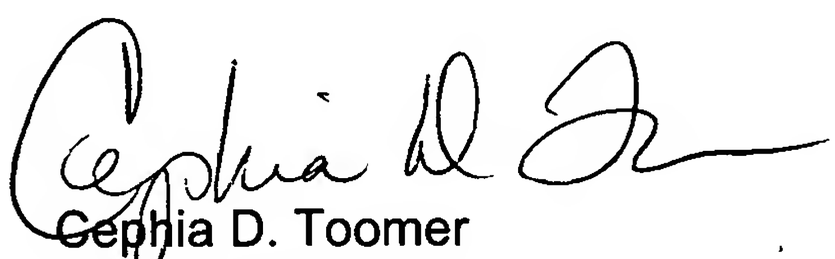
4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cephia D. Toomer
Primary Examiner
Art Unit 1714

10089056\031406